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The National Organic Standards Board
c/o Valerie Frances, Executive Director
NOSB, USDA-AMS-TM-NOP
1400 Independence Avenue, SW
Room 4008-South Bldg., Ag Stop 0268
Washington, D.C. 20250-0200

Re: Response to NOSB Livestock Committee (*Invitation for Public Comment on Aquaculture Standards*)

Before specifically commenting on the issues/questions of concern by the Committee allow me to provide brief background information relative to my education and experience in the field of aquaculture. I have 26 years experience in aquaculture and a Master of Aquaculture degree from Auburn University. Aquaculture production systems' experience includes earthen ponds, recirculating systems, cage culture, and flow-through raceways. Species experience includes tilapia species, blue & channel catfish, Asian carps, hybrid striped bass, freshwater shrimp, crawfish, paddlefish, white sturgeon, and rainbow trout. In addition, I was on the initial organic aquaculture working group back in 2001 and have continued to collaborate with the current aquaculture working group.

Species or Production Method Specific Standards

Existing standards for livestock for the most part do not separately consider species or production methods for the large variety of animal species that are eligible for organic production. A single standard that encompasses universal organic processes and principles will provide reasonably clear guidance for those individuals that want to meet the rigorous requirement for organic labeling and it will instill greater consumer confidence in the organic aquaculture label. The general public knows very little about aquaculture and developing separate specie/production method specific standards will add greatly to consumer confusion and lack of confidence in USDA's organic label.

Unlike terrestrial livestock, aquatic animals can be cultured in a variety of aquaculture production systems. Most species can be cultured in earthen ponds, recirculating systems, or flow-through raceways. Some species can be culture in fresh, brackish, or

marine waters. The criteria that defines a specific aquaculture production system is not as clear cut as one would expect. For example, one particular aquaculture facility in Idaho utilizes earthen ponds, circular tanks, and concrete raceways; and partially recirculates the facility's water flow. I challenge anyone to classify this facility based upon production method.

It is assumed, given that some foreign organic aquaculture standards have established stocking densities, that the NOSB may consider doing the same. The presumption being that lower stocking densities relative to conventional aquaculture practices result in improved aquatic animal welfare. There is a tendency to anthropomorphize animal behavior. While it may seem intuitive that lower stocking densities result in improved aquatic animal welfare the science does not support this assertion. As a matter of fact for some species lower densities result in the establishment of territories and social hierarchies with subsequent aggressive behaviors. Conventional aquaculture stocking densities generally prevent the establishment of territories and social hierarchies.

Stocking density is but one variable in considering the welfare of aquatic animals. Water quality and quantity, nutritional composition of the feed, production methods, site characteristics, health, growth rate, and other factors influence aquatic animal welfare.

Impact on the Environment

Maintaining or improving the environment is a subjective concept. The existence of the living world depends on the flow of energy and circulation of materials through the ecosystem. All things change. Natural lakes and ponds are more or less temporary features since filling, no matter how slow, is inevitable. This is not to imply that no environmental standard should exist but on the contrary to emphasize that humans are part of the ecosystem and not separate from it. For example, let's suppose that an organic dairy is operating in south-central Idaho. One can probably argue that the organic dairy is maintaining *the environment of the dairy itself and improving that environment* through increased soil health and recycling of nutrients based on fundamental principles of organic agriculture. However, prior to the organic dairy the natural ecosystem was high-elevation desert dominated by sagebrush. So is this organic dairy maintaining or improving the environment?

The primary concern with organic aquaculture relative to maintaining or improving the environment is the impact upon water quality, whether through the discharge of water from a facility into receiving waters or from production activities of a facility sited within a body of water. The proposed standards for organic aquaculture contain rigorous requirements beyond conventional aquaculture to maintain or protect the environment such as:

- nutrient recycling where possible
- more efficient use of nutrients
- reduced use of marine proteins and oils
- increased protection against escapes

- no medications in the effluent
- rigorous discharge standards and predator controls

In addition, depending on the size and type of production system the Environmental Protection Agency regulates the discharge of effluent from aquaculture facilities based on local water quality standards and the assimilative capacity of the receiving waters.

Differences between Organic and Conventional Aquaculture

I concur with the comments submitted by the Aquaculture Working Group (October 3, 2006).

Sources of Fish Meal and Fish Oil

I support Option A under § 205.252 aquaculture feed of the Interim Final Report of Aquaculture Working Group. Option A is similar to existing foreign organic aquaculture standards which define the source of fish meal and fish oil with an emphasis on environmental considerations and sustainability. Sustainability is the key issue. A partnership between an independent certifier, such as the Marine Stewardship Council, seafood processors, growers and retailers to ensure the source of fish meal and fish oil is sustainable and as contaminant free as possible is one possibility in addressing this complex issue. A HACCP based inspection system to verify the source and quality would be necessary. I believe that harvesting sustainable wild sources to feed organic animals is in keeping with organic principles given that organic standards exist for 'wild harvesting' of other food products. The use of trimmings is a justifiable use of this resource and fits within the context of recycling nutrients. I disagree with placing a restriction on the amount of these ingredients that can be included in the feeds, particularly for piscivorous species such as salmon and trout.

Slaughter By-products in Aquaculture Feed

I recommend that by-products from processing of terrestrial organic livestock be prohibited as ingredients in organic aquaculture feeds. This recommendation is based not on any compelling scientific rationale but rather upon consumer preference.

Sincerely,



Gary Fornshell
Extension Professor/Aquaculture Extension Educator

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